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FLORA
OF
TROPICAL EAST AFRICA

EDITORS:

W. B. TURRILL, D.Sc., F.L.S.

AND

E. MILNE-REDHEAD, M.A., F.L.S.

HYPERICACEAE

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FAMILIES OF VASCULAR PLANTS REPRESENTED IN THE FLORA OF TROPICAL EAST AFRICA.

The numbers show the position occupied by every family if the 189 Angiosperm families represented in East Africa are arranged (A) according to the modified Bentham and Hooker sequence now used in the Kew Herbarium, (B) according to Engler—Diels "Syllabus der Pflanzenfamilien" (11th edn., 1936), (C) according to Hutchinson "The Families of Flowering Plants."

(The account of every angiosperm family will appear with separate pagination; the names of those families that have already appeared are in italics.)

PTERIDOPHYTA

Aspidiaceae
Aspleniaceae
Blechnaceae
Cyatheaceae
Davalliaceae
Equisetaceae
Gleicheniaceae
Hymenophyllaceae
Isoetaceae
Lycopodiaceae
Marattiaceae
Marsileaceae
Ophioglossaceae
Osmundaceae
Parkeriaceae
Polypodiaceae
Psilotaceae
Pteridaceae
Salviniaceae
Schizaeaceae
Selaginellaceae
Vittariaceae

GYMNOSPERMAE

Cupressaceae
Cycadaceae
Gnetaceae
Podocarpaceae

ANGIOSPERMAE

	A	B	C
Acanthaceae	118	178	150
Agavaceae	166	26	178
Aizoaceae—see Ficoidaceae			
Alangiaceae	87	144	118
Alismataceae	181	7	155
Amaranthaceae	125	56	38
Amaryllidaceae	163	23	175
Ampelidaceae—see Vitaceae			
Anacardiaceae	54	106	115
Annonaceae	3	70	1
Apocynaceae	104	163	127
Aponogetonaceae	183	3	156
Aquifoliaceae	48	107	97
Araceae	179	12	172
Araliaceae	86	151	119
Aristolochiaceae	134	51	11
Asclepiadaceae	105	164	128
Balanophoraceae	144	53	106
Balsaminaceae	37	113	44
Basellaceae	127	62	39
Begoniaceae	81	136	64
Berberidaceae	5	68	9
Bignoniaceae	116	173	148
Bombacaceae	28	118	79
Boraginaceae	109	167	141
Burmanniaceae	155	34	184
Burseraceae	41	98	111
Buxaceae	145	105	90
Cactaceae	82	137	66
Caesalpiniaceae—Leguminosae in part			
Callitrichaceae	66	104	51
Campanulaceae	95	185	138
Canellaceae	13	130	59
Cannaceae	159	32	166
Capparidaceae	10	77	17
Caprifoliaceae	89	181	130
Caricaceae	79	135	65
Caryophyllaceae	19	64	29
Casuarinaceae	151	36	93
Celastraceae	49	108	98
Ceratophyllaceae	153	66	7
Chailletiaceae	43	102	86
Chenopodiaceae	126	55	37
Cochlospermaceae	15	129	57
Combretaceae	68	145	73
Commelinaceae	173	17	160
Compositae	93	188	133
Connaraceae	56	89	116
Convolvulaceae	110	165	143
Cornaceae	88	153	117
Crassulaceae	61	82	23
Cruciferae	9	78	19
Cucurbitaceae	80	184	63
Cyanastraceae—see Tecophilaeaceae			
Cyperaceae	187	10	187
Cytinaceae	132A	51A	11A
Dichapetalaceae—see Chailletiaceae			
Dilleniaceae	2	120	55
Dioscoreaceae	168	28	177

[continued on p. iii of cover

FLORA OF TROPICAL EAST AFRICA

HYPERICACEAE

E. Milne-Redhead

Herbs, suffrutices, shrubs or trees, rarely climbers; juice resinous. Leaves opposite, verticillate or alternate, simple, often gland-dotted; stipules absent; indumentum often stellate. Inflorescence terminal, cymose-paniculate, or variously reduced to a single flower. Flowers regular, ♀. Sepals imbricate, often glandular. Petals imbricate or contorted, white, yellow or variously marked or tinged red. Stamens numerous, hypogynous, often united into bundles. Ovary 1–5-locular; styles usually free. Ovules numerous, few or solitary in each loculus, axile, ascending, rarely pendulous. Fruit a capsule, berry or drupe. Seeds without endosperm.

1. Fruit a dehiscent capsule; petals usually yellow, glabrous; herbs, shrubs or trees . . . . **1. Hypericum**
   Fruit indehiscent 2
2. Fruit a drupe with crustaceous pericarp and 5 pyrenes; evergreen shrubs or trees. . . . . **4. Harungana**
   Fruit a berry with 5 to many seeds 3
3. Petals yellow, glabrous; inflorescence 1- to many-flowered; seeds numerous; herbs or shrubs . **1. Hypericum**
   Petals white, often marked with red, villous on the inner surface; inflorescence many-flowered; seeds few or many; suffrutices, shrubs or trees. . . 4
4. Seeds numerous (about 25), small, dry; shrubs or trees . . . . . **2. Vismia**
   Seeds few (usually 5), fleshy; suffrutices, shrubs or trees . . . . . **3. Psorospermum**

1. HYPERICUM

L., Gen. Pl., ed. 5, 341 (1754)

Trees, shrubs, or herbs. Leaves opposite, sessile or shortly petiolate, usually entire, furnished with translucent glandular dots or linear canals and often black submarginal dots. Flowers terminal, solitary or cymose, sometimes forming a corymb or panicle. Sepals usually 5. Petals usually 5, usually yellow, asymmetrical, often with black marginal dots, persistent after flowering. Stamens usually very numerous, arranged in separate groups or the filaments shortly fused at the base to form a ring round the ovary. Styles 3–5, free or variously fused. Fruit a septicidal capsule or indehiscent. Seeds minute, cylindric.

The following sections and subsections of the genus are represented in the area covered by this work:—

Campylosporus (Spach) Engl. . . . . spp. 1–5
Humifusoideum R. Keller . . . . . sp. 10
Hypericum [*Euhypericum* Boiss.]
  subsect. *Oligostema* Boiss. . . . . spp. 11, 12
  „ *Homotaenium* R. Keller . . . . spp. 7, 8
  „ *Hypericum* [*Heterotaenium* R. Keller] . sp. 6
Brathys (Linn. f.) Choisy
  subsect. *Spachium* R. Keller . . . . sp. 9

1. Trees or shrubs 2
   Herbaceous plants 8
2. Flowers in corymbose cymes ; styles 3–5 3
   Flowers solitary ; styles 5 6
3. Leaves rounded at the apex ; petals ± 10 mm. long ; styles 3 or rarely 4 4
   Leaves acute at the apex ; petals 15 mm. or longer ; styles 5 5
4. Leaves shortly petiolate, cuneate or rounded at the base, flat . . . . . 6. *H. kiboënse*
   Leaves sessile, rounded or subcordate at the base, undulate . . . . . 13. *sp. A*
5. Leaves with tertiary veins forming a conspicuous reticulation and a translucent glandular dot within each reticulation . 2. *H. roeperianum*
   Leaves without visible tertiary veins or glandular dots ; linear longitudinal glands embedded below the upper surface . . . . . 1. *H. quartinianum*
6. (2) Leaves up to 3·7 cm. long, with pinnate anastomosing secondary venation and interrupted linear glands . . . 3. *H. lanceolatum*
   Leaves up to 5·0 or 6·0 cm. long, with 3 or 5 secondary nerves running from near the base to the apical half (sometimes with one or two indistinct veins connecting them to the midrib in the apical half) and densely packed linear glands. 7
7. Flowers expanded in anthesis ; petals bright yellow or orange-yellow . . . 4. *H. keniense*
   Flowers cup-shaped in anthesis ; petals bright red outside, bright yellow or orange-yellow inside . . . . 5. *H. bequaertii*
8. (1) Flowers in cymes ; styles 3 or rarely 4 9
   Flowers solitary, often appearing axillary ; styles 3–5 12
9. Leaves shortly pubescent ; calyx with black stalked glands on the margin 10
   Leaves glabrous ; glands on calyx sessile or absent 11
10. Flowers rather loosely arranged in a paniculate cyme . . . . . 7. *H. annulatum*
    Flowers densely arranged in a head . . 8. *H. afromontanum*
11. Leaves spreading, broadly elliptic or elliptic, with undulate margin and conspicuous translucent dots ; sepals with black marginal glands. . . . . 13 & 14 *spp. A & B*
    Leaves erect, narrowly elliptic, flat, with inconspicuous translucent dots ; sepals without black marginal glands . . 9. *H. lalandii*
12. (8) Styles 5, rarely 4 or 6 ; fruit fleshy, indehiscent 13
    Styles 3 rarely 4 ; fruit a capsule 14
13. Leaves shortly petiolate, rounded at the base 10. *H. peplidifolium*
    Leaves sessile, cordate at the base . . 15. *sp. C*

14. Leaves rounded at the base ; sepals 3–4 mm. long ; stamens 15–27 . . . 11. *H. scioanum*
Leaves cordate at the base ; sepals 5–6 mm. long ; stamens 36–45 . . . 12. *H. humbertii*

1. **H. quartinianum** *A. Rich.*, Tent. Fl. Abyss. 1 : 97 (1847) ; F.T.A. 1 : 156 (1868), *pro parte, excl. syn. Schimp.* ; V.E. 3 (2) : 499 (1921), *pro parte ;* Good in J.B. 65 : 332 (1927) ; I.T.U., ed. 2, 157 (1952). Type : Ethiopia, Shoa, *Petit* (P, holo., K, iso. !)

Shrub, 0·5–4·5 m. high. Young stems indistinctly 4-angled, soon becoming woody and terete. Leaves ovate-lanceolate, lanceolate, oblong-elliptic or oblanceolate, ranging from 16 × 6 mm. and 35 × 5 mm. to 72 × 27 mm. and 74 × 19 mm. (86 × 20 mm.), acute or subacute, broad and cordate or subcordate and clasping at the base, furnished with two pairs of secondary veins (often inconspicuous), running very obliquely from near the base, anastomosing with a few less oblique secondaries in the apical half (tertiary veins and reticulation not noticeable) and many longitudinal linear not translucent glands, often inconspicuous, embedded below the upper surface, and black submarginal glands. Flowers in few- to many-flowered terminal corymbose cymes. Sepals unequal, ovate to lanceolate, acute with black submarginal dots. Petals 1·9–4·1 cm. long, bright yellow, with black marginal dots. Stamens in 5 bundles of about 30 each. Styles 5, united up to the apex. Capsule 5-valved.

UGANDA. Karamoja District : Napak, Feb. 1938 (fl. and fr.), *Sangster* 418 ! ; Mbale District : Elgon, N. Bugishu, Budadire, on banks of Jiroko River, Jan. 1932 (fl.), *Chandler* 432 ! and Aug. 1936 (fl.), *A. S. Thomas* 2607 !
KENYA. Elgon, Oct.–Nov. 1930 (fl.), *Lugard* 59 ! ; Elgon, south side, Feb. 1941 (fl.), *Tweedie* 560 ! ; Uasin Gishu District : Kipkarren, Feb. 1932 (fl. and fr.), *Brodhurst-Hill* 725 !
TANGANYIKA. Morogoro District : Uluguru Mts., Chenzema, 4 Apr. 1934 (fl. and fr.), *Michelmore* 921 ! ; Mbeya District : at foot of Wentzel Heckmann Crater, 28 Aug. 1936 (fl.), *B. D. Burtt* 6233 ! ; Ufipa District : Malonje, 8 Nov. 1933 (fl.), *Michelmore* 753 !
DISTR. **U1**, 2 ; **K2**, 3, ? 5 ; **T4**, 6–8 ; also in Ethiopia and northern Nyasaland.
HAB. Rocky places, gulleys and river banks in upland grassland or deciduous woodland, 1150–2250 m.

SYN. *H. ulugurense* Engl. in E.J. 28 : 434 (1900) ; V.E. 3 (2) : 498 (1921) ; Good in J.B. 65 : 332, t.582/11 (1927) ; T.T.C.L. 250 (1949). Type : Tanganyika, Uluguru Mts., *Stuhlmann* 9247 (B, holo. †)

The disrupted distribution of this species is interesting. It has not been found on the Kenya Highlands nor on Kilimanjaro or the Usambara Mts. Plants from the northern area usually have petals less than 2·5 cm. long, whilst those from the southern area are usually over 3·0 cm. long. Broad leaves with cordate base are more frequent in the south. There are, however, exceptions which prevent one recognizing *H. ulugurense* Engl. as a distinct species.

2. **H. roeperianum** [*Schimp. ex*] *A. Rich.*, Tent. Fl. Abyss. 1 : 96 (1847) ; T.T.C.L. 250 (1949) ; I.T.U., ed. 2, 159 (1952). Type : Ethiopia, Semen, *Schimper* 866 (K, iso. !)

Shrub or small tree, 0·6–5 m. high. Stems ± terete even when young. Leaves lanceolate or oblong-elliptic, ranging from 25 × 6 mm. and 30 × 7 mm. to 75 × 23 mm. and 86 × 22 (115 × 37 mm.), acute or subacute, narrowed to a clasping base, furnished with several pairs of secondary veins and a reticulation of tertiary veins obvious on both surfaces, with a translucent glandular dot within each reticulation, and black submarginal glands. Flowers in few- to many-flowered terminal corymbose cymes. Sepals unequal, ovate to lanceolate, acute to subacute, with black submarginal dots. Petals (1·2) 2·0–2·5 cm. long, bright yellow with very few or no black

marginal dots. Stamens in 5 bundles of about 45 each. Styles 5, usually united up to the apex. Capsule 5-valved.

UGANDA. Karamoja District : Mt. Moroto, *Eggeling* 2950 ! and Mt. Debasien, Jan. 1936 (fl.), *Eggeling* 2826 ! ; Mbale District : Elgon, N. Bugishu, Butandiga, 1938, *Tothill* 2688.
KENYA. Laikipia, *Battiscombe* 1128 ! ; North Nyeri District : Mt. Kenya, west side near Forest Station, 28 Dec. 1921 (fr.), *Fries* 418 ! ; Kiambu District : Ngong Forest, 25 Jan. 1931 (fl.), *Napier* 771 !
TANGANYIKA. Masai District : Mt. Kitumbeine, 9 Jan. 1936 (fl. and fr.), *Greenway* 4314 ! ; Moshi District : Kilimanjaro, Mashame, Feb. 1928 (fl.), *Haarer* 1039 ! ; Lushoto District : near Lushoto, 14 Jan. 1941 (fl.), *Greenway* 6110 !
DISTR. U1, 2 ; K2, 3, 4 : T2, 3 ; also in Ethiopia and A.-E. Sudan.
HAB. In upland dry evergreen forest, moist bamboo thickets, upland evergreen bushland and upland grassland, often by rivers or streams, 1500–2900 m.

SYN. *H. quartinianum* A. Rich. var. *roeperianum* (A. Rich.) Engl., Hochgeb. Trop. Afr. 307 (1892) ; Pichi-Sermolli, Miss. Stud. Lago Tana, Bot. 1 : 97 (1951) [? *H. schimperi* sensu Dale, T.S.K. 36 (1936), *non* A. Rich.]

3. **H. lanceolatum** *Lam.*, Encycl. 4 : 145 (1797) ; F.T.A. 1 : 156 (1868) ; P.O.A. C : 274 (1895) : V.E. 3 (2) : 497, t.229 (1921) ; F.W.T.A. 1 : 230 (1927) ; B.J.B.B. 13 : 74 (1934) ; T.S.K. 36 (1936) ; Gard. E. Afr., ed. 2, 207, t. 3/4 (1939) ; F.P.N.A. 1 : 620 (1948) ; Fl. Madag. 135 : 3 (1951). Type : Réunion [Bourbon], *Commerson* (LINN-SM, iso. !)

Much branched evergreen glabrous shrub or tree, 1–12 m. high, with scaly bark. Young stems 4-angled, but soon becoming woody and terete. Leaves lanceolate or oblong-lanceolate, ranging from 11 × 2·5 mm. to 37 × 10 mm, acute, narrowed to a clasping base, furnished with pinnate venation and longitudinal interrupted linear, often translucent, glands and inconspicuous translucent (rarely opaque black) marginal glandular dots. Flowers solitary at the ends of the branches. Bracts (if any) leaflike, with black opaque marginal dots. Sepals unequal, ovate, rather concave, obtuse, with black opaque marginal dots. Petals (1·5) 2·5–3·0 cm. long, yellow, without black marginal dots. Stamens in 5 bundles of about 30 each. Styles 5, united in the lower part. Capsule 5-valved.

UGANDA. Kigezi District : Muhavura—Mgahinga saddle, Sept. 1946 (fl.), *Purseglove* 2159 ! ; Ruwenzori, Karangora, 27 Jan. 1935 (fl.), *G. Taylor* 3254 ! ; Mbale District : Elgon, Benet, 1936, *Eggeling* 2460 !
KENYA. Trans-Nzoia District : Elgon, Nov. 1950 (fl.), *Tweedie* 876 ! ; Nakuru District : between Thomson's Falls and Nakuru, 15 Feb. 1934 (fl.), *Edwards* 2843/16 ! ; Nyeri District : NW. Mt. Kenya, *Battiscombe* 731 !
TANGANYIKA. Moshi District : Kilimanjaro, S. slope between Umbwe and Weru Weru Rivers, 1 Sept. 1932 (fl.), *Greenway* 3215 ! ; Morogoro District : Uluguru Mts., Lupanga Peak, 26 Dec. 1931 (fl. and fr.), *B. D. Burtt* 3468 ! ; Mbeya District : Poroto Mts., slopes of Wentzel Heckmann Crater, 14 Sept. 1936 (fl.), *B. D. Burtt* 6224 !
DISTR. U1–3 ; K3, 4 ; T2, 3, 6, 7 ; mountains of eastern Africa from Ethiopia to Cape Province, the Cameroons and Fernando Po ; also in Madagascar, the Comoro Islands and Réunion.
HAB. Upland dry evergreen forest, upland evergreen bushland and stream-sides in upland grassland, 1800–3360 m., descending to 900 m. on the Uluguru Mts.

SYN. *H. leucoptychodes* [Steud. ex] A. Rich., Tent. Fl. Abyss. 1 : 96 (1847) ; Good in J.B. 65 : 330, t. 582/3–5 (1927) ; Bredell in Bothalia 3 : 580 (1939) ; Fl. Pl. S. Afr. 20 : t. 787 (1940) ; T.T.C.L. 249 (1949) ; I.T.U., ed. 2, 157, t.33 (1952).
H. lanuriense De Wild., Pl. Bequaert. 5 : 403 (1932) ; Robyns, F.P.N.A. 1 : 622 (1948). Type : Belgian Congo, Ruwenzori, Ruanoli [Lanuri] Valley, *Bequaert* 4460 (BR, holo. !)

As is to be expected in a widely spread species, *H. lanceolatum* shows considerable variation and I find myself unable to recognize *H. lanuriense* De Wild. as a species distinct from it. Whilst the leaves of *H. lanceolatum* usually are without opaque black marginal dots, these occur occasionally on plants which in all other respects are characteristic of *H. lanceolatum*, for instance, on *Gillett* 5142 from Ethiopia, Galla Pass (9° 28′

N., 42° 19′ E.), and *H. B. Johnston* 1491 from the A.-E. Sudan, Imatong Mts., both from areas where normal *H. lanceolatum* also occurs. The character, leaves subobtuse, used by Robyns (l.c.) in separating *H. lanuriense* from *H. lanceolatum* is scarcely supported by the type specimen. Whilst it is admittedly relatively scarce on Ruwenzori, typical *H. lanceolatum* does occur on that massif, as can be seen from the specimen here cited and from material recently collected by H. A. Osmaston.

4. **H. keniense** *Schweinf.* in von Hoehnel, Zum Rudolf-See u. Stephanie-See 868 (1892); P.O.A. C; 274 (1895), *pro parte, quoad sp. ex Kenia*; V.E. 3 (2): 499 (1921), *pro parte, quoad sp. ex Kenia*; K.B. 1953: 434 (1953). Type: Mt. Kenya, western slope at 1950 m., *von Hoehnel* (B, holo. †; BM, fragment !)

Much branched shrub or small tree (0·3) 1–10 m. high. Young stems 4-angled but soon becoming woody and terete. Leaves lanceolate or oblong-lanceolate, ranging from 15 × 5 mm. and 11 × 2·5 mm. to 37 × 8·5 mm., and 60 × 7·5 mm., acute, narrowed to a rather broad clasping base, furnished with 3 or 5 veins running from the base to near the apex, sometimes with one or two indistinct veins connecting them obliquely with the midrib in the apical half, with numerous longitudinal linear not translucent glands. Flowers solitary at the ends of the branches. Sepals ± unequal, ovate, subacute, without black dots. Petals spreading in anthesis (2·4) 2·8–3·3 (3·8) cm. long, 1·4–1·7 (2·2) * cm. wide, bright yellow or orange-yellow, without black marginal dots. Stamens in 5 bundles of about 40 each. Styles 5, united in the lower part. Capsule 5-valved.

UGANDA. Ruwenzori, Kigo, Aug. 1931, *Fishlock & Hancock* 50 ! and Bujuku Valley, Aug. 1933, *Eggeling* 1343 ! and April 1948 (fl.), *Hedberg* 624 !

KENYA. Elgon, Mar. 1935, *Thorold* 2747 !; Aberdare Mts., Kinangop, 17 July 1948, *Hedberg* 1629 !; Mt. Kenya, Caesar's Seat, 18 June 1933, *C. G. Rogers* 675 !

TANGANYIKA. Mbulu District: Mt. Hanang, main peak, 8 Feb. 1946, *Greenway* 7658 ! and Mt. Loolmalasin, 17 Sept. 1932, *B. D. Burtt* 4211 !; Moshi District: Kilimanjaro, N. slope above Rongai, 18 Feb. 1933, *C. G. Rogers* 426 !

DISTR. **U2**, 3; **K3**, 4; **T2**; also in the Belgian Congo on Ruwenzori and Mt. Kahusi; not known on the Virunga Mts.

HAB. Upland dry evergreen forest and upland dry evergreen bushland, 2400–3550 m., reaching 4000 m. (*fide* Grote) on Kilimanjaro. The altitude, 1950 m., quoted for the type gathering seems unusually low, and needs confirmation.

SYN. *H. ruwenzoriense* De Wild. in Rev. Zool. Bot. Afr. 8, Suppl. Bot. 5 (1920): Staner in B.J.B.B. 13: 71 (1934); F.P.N.A. 1: 623 (1948); T.T.C.L. 250 (1949); I.T.U., ed. 2, 159 (1952). Type: Belgian Congo, Ruwenzori, Butahu [Butagu] Valley, *Bequaert* 3705 (BR, holo. !)

NOTE. Some specimens of *H. keniense* (e.g. Uganda, Mbale District, N. Bugishu, Butandiga, *A. S. Thomas* 488 ! and Tanganyika, Kilimanjaro, Mashame, *Haarer* 962 ! & *Moreau* 39 !) approach *H. lanceolatum* in appearance and in leaf-venation, and may possibly be of hybrid origin.

5. **H. bequaertii** *De Wild.* in Rev. Zool. Bot. Afr. 8, Suppl. Bot. 4 (1920); Pl. Bequaert. 1: 241 (1922). Type: Belgian Congo, Ruwenzori, Butahu [Butagu] Valley, *Bequaert* 3757. (BR, holo. !, K, iso. !)

Much branched evergreen glabrous shrub or tree up to 12 m. high. Young stems 4-angled but soon becoming woody and terete. Leaves lanceolate, or oblong-lanceolate, ranging from 10 × 4 mm. to 50 × 12 mm., acute, narrowed to a rather broad clasping base, furnished with 3 or 5 veins running from the base to near the apex and with numerous longitudinal, linear glands parallel with the midrib. Flowers solitary at the ends of the branches. Sepals ± unequal, ovate or ovate-lanceolate, subacute, without black opaque marginal dots. Petals ascending in anthesis so that the flower appears cup-shaped, 2·7–3·5 cm. long, 1·6–2·5 cm. wide, orange-

* Two gatherings from Bujuku Valley, Ruwenzori, have exceptionally wide petals, possibly caused by crossing with *H. bequaertii* De Wild.

yellow with bright red outside, without black marginal dots. Stamens in 5 bundles of about 27 each. Styles 5, united in the lower part. Capsule 5-valved.

UGANDA. Ruwenzori : Bigo, 23 Mar. 1948, *Adamson* 11 ! and Bujuku Valley, *Eggeling* 1328 ! and Upper Butahu [Butagu] Valley, 27 Jan. 1949, *Salt* 59 !
DISTR. U2 ; also in the Belgian Congo ; endemic on Ruwenzori.
HAB. Upland evergreen bushland, 3300–3900 m. (4290 m. in the Belgian Congo).

SYN. [*H. keniense* sensu Staner in B.J.B.B. 13 : 72 (1934) ; Robyns in F.P.N.A. 1 : 624 (1948) ; Dale in I.T.U., ed. 2, 157 (1952), *non* Schweinf.]

6. **H. kiboënse** *Oliv.* in Trans. Linn. Soc., ser. 2, Bot. 2 : 329 (1887) ; P.O.A. C ; 274 (1895) ; V.E. 3 (2) : 500 (1921) ; T.T.C.L. 249 (1949). Type : Tanganyika, Kilimanjaro, 3900 m., *H. H. Johnston* 136 (K, holo. !)

Small much branched glabrous shrub up to 2·4 m. high. Stems terete, woody below with the cortex soon flaking off. Leaves very shortly petiolate, the blade oblong-elliptic or oblong-obovate, ranging from 6 × 2·5 mm. to 18 × 7 mm., rounded at the apex, cuneate or rounded at the base, furnished with conspicuous translucent glandular dots. Flowers one to several cymosely arranged at the ends of the many branches. Bracts with black marginal dots. Sepals (occasionally 4) ± equal, lanceolate, acute, with black sessile dots or shortly stalked glands on the margin, and a few translucent glandular dots and dashes on the surface. Petals (occasionally 4), ± 10 mm. long, yellow with a few black marginal dots. Stamens about 40, not arranged in definite groups. Styles 3 (4), about as long as the ovary. Capsule 3- (4-) valved.

UGANDA. Mbale District : Elgon, Jan. 1918, *Dummer* 3504 ! & April 1930, *Liebenberg* 1659 ! ; Elgon, N. Bugishu, Bulambuli, Aug. 1929, *Soundy & Hancock* 60 !
KENYA. Elgon, Dec. 1930, *Lugard* 323 ! ; Aberdare Mts., Kinangop, 21 Dec. 1930, *Napier* 638 ! ; N. side of Mt. Kenya, near Kongoni River, 13 Feb. 1922, *Fries*, 1553 !
TANGANYIKA. Arusha District : E. side of Mt. Meru, 4 Oct. 1932, *B. D. Burtt* 4131 ! ; Moshi District : N. Slope of Kilimanjaro above Rongai, 1 Dec. 1932, *C. G. Rogers* 155 ! & Kilimanjaro, 28 Dec. 1933, *Schlieben* 4419 !
DISTR. U3 ; K3, 4 ; T2 ; not known elsewhere.
HAB. At edge of upland dry evergreen forest, in upland evergreen bushland and upland grassland, often by streams, 2100–3900 m.

VARIATION. A specimen from Kilimanjaro, Marangu, 2700 m. (*Volkens* 1886) has a less branched habit and one very lax cyme, terminating the main shoot. Whilst it does not strictly agree with the above description, it is felt that this is probably no more than a form of *H. kiboënse*.

7. **H. annulatum** *Moris*, Stirp. Sard. 9 (1827) and Fl. Sard. 1 : 323, t. 22 (1837) ; K.B. 1953 : 435 (1953). Type : Sardinia, Monte Santa Vittoria, *Moris* (TO, holo. !, K, iso. !)

Perennial herb with erect stems up to 75 cm. tall, often much less, sometimes shortly decumbent below, terete, shortly pubescent, puberulous or glabrescent. Leaves sessile, ovate or ovate-lanceolate, those towards the middle of the stem ranging from 16 × 6 mm. to 55 × 23 mm., more or less acute at the apex, rounded or slightly cordate at the base, rather densely clothed with short or very short hairs or glabrescent, the pubescence shorter on the upper surface, furnished with inconspicuous translucent glandular dots and usually with black submarginal glands, especially near the apex, on the lower surface, sometimes the lower surface also has scattered black glands, sometimes these glands are entirely absent. Flowers many, rather loosely arranged in paniculate cymes. Bracts with black stalked glands on the margin, sometimes very dense towards the base, appearing to form a ring round the stem. Sepals ± equal, oblong-lanceolate, acute, with black stalked glands on the margin, with or without black glandular dots or dashes

on the surface. Petals ± 13 mm. long, yellow often tinged red, with or without glandular dots. Stamens about 50, not arranged in definite groups. Styles 3. Capsule 3-valved.

UGANDA. Mbale District : Tororo, at base of Rock, July 1926, *Maitland* 1180 ! & Elgon, S. Bugishu, Bupota, 7 Aug. 1917, *Snowden* 522 !
KENYA. Northern Frontier Province : Lorogi [Leroghi] Forest, 19 Oct. 1935, *Leakey* 54 *in C.M.* 8582 ! & 1936, *Jex-Blake in C.M.* 9147 ! ; N. Nyeri District : NW. Mt. Kenya, *Battiscombe* 729 ! ; Machakos District : Ol Donyo Sabuk, Jan. 1934, *Napier in C.M.* 10870 !
TANGANYIKA. Mbulu District : W. slope of Mt. Hanang, 10 Feb. 1946, *Greenway* 7678 ! ; Lushoto District : Mkumbala, 24 Aug. 1909, *Braun in A.H.* 2884 ! & Hambalai Scarp, Jan. 1933, *Moreau* 45 !
DISTR. **U3** ; **K1**, 3, 4 ; **T2**, 3 ; Eritrea, northern Ethiopia and Sardinia.
HAB. Hillsides and dry places in upland grassland, 1100–2700 m.

SYN. *H. intermedium* [Steud. ex] A. Rich., Tent. Fl. Abyss. 1 : 95 (1847) ; F.T.A. 1 : 155 (1868), *excl. synon.* ; V.E. 3 (2) : 500 (1921). Type : Ethiopia, Tigré, near Adowa, *Schimper* 1062 (FI, iso. !, K, iso. !)
H. perfoliatum L. var *annulatum* (Moris) Fiori in Fiori & Paoletti, Fl. Anal. Ital. 1 : 389 (1898)

8. **H. afromontanum** *Bullock* in K.B. 1932 ; 492 (1932) ; Hook., Ic. Pl. 32 : t. 3192 (1933). Type : Kenya, Elgon, *Lugard* 338a (K, holo. !)

Perennial herb with erect, usually simple, stems up to 60 cm. tall, often less, terete, shortly pubescent, puberulous or glabrescent. Leaves sessile, oblong-elliptic or oblong-lanceolate, those towards the middle of the stem ranging from 15 × 5 mm. to 24 × 11 mm., obtuse or subacute, rounded and clasping at the base, rather densely clothed with short or very short hairs, the pubescence shorter on the upper surface, furnished with inconspicuous translucent glandular dots, black submarginal glands and a few scattered black glands on the lower surface. Flowers few in a dense head. Bracts with black stalked glands on the margin, usually very dense towards the base, appearing to form a ring round the stem. Sepals ± equal, lanceolate, acute, with black stalked glands on the margin and black glandular dots and dashes on the surface. Petals ± 13 mm. long, yellow, often tinged red, beset with black glandular dots. Stamens ± 35, not arranged in definite groups. Styles 3, longer than the ovary. Capsule 3-valved. Fig. 1, p. 8.

UGANDA. Mbale District : Elgon, 22 Oct. 1916, *Snowden* 479 ! ; Elgon, Gyengo, 1 Dec. 1938, *A. S. Thomas* 2700 ! ; & west side of crater, Jan. 918, *Dummer* 3301 !
KENYA. Elgon, Feb. 1930, *Gardner* 2259 !
DISTR. **U3** ; **K3** ; endemic on Elgon
HAB. Upland and moor grassland, 3100–3600 m.

9. **H. lalandii** *Choisy* in DC., Prodr. 1 : 550 (1824) ; F.T.A. 1 : 155 (1868) ; P.O.A. C : 274 (1895) ; V.E. 3 (2) : 500 (1921) ; B.J.B.B. 13 : 70 (1934) ; Consp. Fl. Angol. 1 : 120 (1937) ; Bredell in Bothalia 3 : 575 (1939) ; Fl. Madag. 135 : 4, fig. 1/7 (1951). Type : South Africa, Cape of Good Hope, *Lalande* (P, ? iso. !, K, photo.-iso. !)

Glabrous perennial herb. Stems erect, single or slightly tufted, sometimes shortly decumbent below, 0·8–7·0 dm. long, slender, quadrangular. Leaves sessile, lanceolate or narrowly elliptic, those towards the middle of the stem ranging from 7 × 1 mm. to 23 × 7 mm., those towards the base and of the sterile shoots relatively shorter and broader, acute or obtuse, clasping the stem at the base, furnished with minute inconspicuous translucent glandular dots. Flowers up to about 50, or often much fewer, arranged in a loose dichotomous cyme ; pedicels 2–22 mm. long. Sepals ± equal, lanceolate, acute, furnished with translucent ± parallel veins. Petals 6–8 (10) mm. long, yellow or orange-yellow, sometimes marked with red, without marginal dots. Stamens from 40–60, not arranged in definite groups. Styles 3 or 4. Capsule 3- or 4-valved.

FIG. 1. *HYPERICUM AFROMONTANUM*, from *Lugard* 338a—1, 2, upper part of a simple and a branched flowering stem, × 1 ; 3, lower surface of leaf, × 26 ; 4, part of calyx, from within, × 3 ; 5, marginal glands of sepal, × 14 ; 6, petal, × 3 ; 7, stamens, × 8 ; 8, pistil, × 8. Reproduced by permission of the Bentham-Moxon Trustees.

UGANDA. West Nile District : Logiri, 18 Mar. 1945, *Greenway & Eggeling* 7221 ! ; Masaka District : Buddu, Kyeke, Aug. 1945, *Purseglove* 1782 ! ; Mengo District ; Kampala, King's Lake, 7 Nov. 1935, *Chandler* 78 !

KENYA. Trans-Nzoia District : Kitale, 1 July 1950 (fl. & fr.), *Wiltshire* 7 ! & Hoey's Bridge, Dec. 1931 (fl. & fr.), *Mainwaring* 1544 *in C.M.* 4092 ! ; Uasin Gishu District : Kipkarren, Soy Road, Aug. 1931 (fl. & fr.), *Brodhurst-Hill* 183 ! ; Aberdare Mts., Kinangop, Sussex Farm, 1 Nov. 1934 (fl. & fr.), *G. Taylor* 1511 !

TANGANYIKA. Bukoba District : Buyango, Oct. 1931 (fl. & fr.), *Haarer* 2304 ! ; Ufipa District : Ufipa Plateau, E. of Kalambo basin, 14 Dec. 1934 (fl.), *Michelmore* 1060 ! ; Njombe District : Msima Farm, *Emson* 268 !

DISTR. U1–4 ; K3 ; T1, 4, 7 ; A.-E. Sudan (Equatoria) south to Cape Province, west to Angola and Nigeria (Bauchi Plateau) ; Madagascar ; also in Bhutan, Khasia and SW. Yunnan.

HAB. Marshes and wet places in upland grassland, 1080–2250 m.

SYN. *H. comorense* H. Baill. in Grand., Hist. Nat. Madag., Bot., Atlas 3 : t. 338 (1896)

H. baumii Engl. & Gilg in Warb., Kunene-Samb.-Exped. 306 (1903). Type : Angola, Bié District, R. Cubango, *Baum* 909 (B, holo. †)

VARIATION. *H. lalandii* Choisy shows considerable variation in size, in flower-colour, in length of petals and in the number of stamens. It has not, however, been found possible to recognize any varieties or subspecies within the area covered by this Flora, as there does not appear to be any correlation of the characters which vary.

NOTE. *H. lalandii* is remarkable in that it occupies at the present day two quite distinct regions, the one in Africa and Madagascar and the other in SE. Asia. The only character which seems to distinguish the Asian plant from the African is that the leaves of the former are rather evenly spaced up the stem, whilst in the African plant the internodes just below the inflorescence are usually considerably longer than those lower down. Although this character is not, however, absolute, it might be used to recognize the Asian plant as a subspecies. The fact, however, remains that we have in *H. lalandii* an example of discontinuous distribution which seems entirely inexplicable.

H. lalandii appears to be frequent near Lake Victoria and in the Trans-Nzoia District of Kenya, and in the West Nile District of Uganda and in the southern highlands of Tanganyika. It is apparently rare in the Kenya Highlands where it has been collected on one occasion only, at 2550 m. on Kinangop.

10. **H. peplidifolium** *A. Rich.*, Tent. Fl. Abyss. 1 : 95 (1847) ; F.T.A. 1 : 155 (1868) ; P.O.A. C. : 274 (1895) ; B.J.B.B. 13 : 68 (1934) ; F.P.N.A. 1 : 618 (1948). Type : Ethiopia, without locality, *Petit* (P, holo.)

Glabrous perennial herb, sometimes with new plants arising from adventitious buds on the horizontal roots. Stems tufted, prostrate, procumbent or ascending up to 6 dm. or occasionally 9 dm., but often considerably less, sometimes rooting at the lower nodes, rather slender, terete. Leaves very shortly petiolate ; blades elliptic or obovate, ranging from 3 × 2 mm. to 26 × 17 mm., rounded at the apex and base, furnished with conspicuous translucent glandular dots, and usually with black glands near the margin on the lower surface. Flowers single, often appearing axillary ; pedicels 5–40 mm. long. Sepals very unequal, elliptic, obovate or oblong, the inner ones narrower, obtuse, furnished with a few translucent glandular dots and black submarginal dots. Petals 7–8 (14) mm. long, yellow, with black marginal dots. Stamens usually in 3 often rather indefinite groups of 7–10, but sometimes totalling as many as 60. Styles normally 5. Fruit fleshy, subglobose or broadly ovoid, indehiscent.

UGANDA. Kigezi District : Kachwekano Farm, Apr. 1949 (fl. & fr.), *Purseglove* 2737 ! ; Mengo District : Kawanda, Dec. 1935 (fl. & fr.), *Chandler* 1525A ! ; Mbale District : N. Bugishu, Sipi, 30 Aug. 1932 (fl. & fr.), *A. S. Thomas* 397 !

KENYA. West Suk District : Kapenguria, 13 May 1932 (fl. & fr.) *Napier* 1927 ! ; Trans-Nzoia District : Elgon, May 1939 (fl. & fr.), *Tweedie* 455 ! ; Machakos District : N. side of Chyulu Hills, 21 Apr. 1938 (fl.), *Bally* 205 *in C.M.* 8083 !

TANGANYIKA. Kilimanjaro, N. slope, 29 Nov. 1932 (fl. & fr.), *C. G. Rogers* 90 ! ; Morogoro District : Uluguru Mts., above Chenzema, 4 Jan. 1934 (fl.), *Michelmore* 918 ! ; Njombe District : Msima Farm, *Emson* 362 !

DISTR. **U**1–4 ; **K**2–6 ; **T**2–4, 6–8 ; highlands from Ethiopia and A.-E. Sudan (Imatong Mts.) south to Southern Rhodesia (Inyanga), Northern Rhodesia (Mwinilunga) and Angola ; also in Cameroons highlands and Fernando Po.

HAB. Marshy places, swamps, stream and roadside banks, pastures, temporary leys and abandoned cultivations in upland and moor grassland, 1170–3600 m.

SYN. *H. peplidifolium* A. Rich. forma *ovatum* Engl. in E.J. 19, Beibl. 47 : 40 (1894). Types : Tanganyika, Kilimanjaro, Marangu, 1550 m., *Volkens* 697, 698 & Usambara Mts., Mlalo, *Holst* 47 & Lutindi, *Holst* 3266 (all B, syn. †)

H. peplidifolium A. Rich. forma *parvifolium* Engl. in E.J. 19, Beibl. 47 : 40 (1894). Types : Kilimanjaro, Marangu, 2000–2500 m., *Volkens* 829 & Kisinika [Kifinika], 2800 m., *Volkens* 1157 (B, syn. †, BM, iso.-syn. !, K, iso.-syn. !). The British Museum and Kew sheets of *Volkens* 1157 are said to have come from Mawenzi at 3000 m.

H. peplidifolium A. Rich. var *oblongifolium* Engl. in E.J. 19, Beibl. 47 : 40 (1894). Type : Kilimanjaro, Kibo, 3100 m., *Volkens* 1545 (B, holo. †, K, iso. !, BM, iso. !)

H. peplidifolium A. Rich. var *robustum* Bak. f. in Trans. Linn. Soc., ser. 2, 4 : 6 (1894). Type : Nyasaland, Mt. Milanji, *Whyte* 143 (BM, holo. !)

VARIATION. As one would expect from a species with such a wide range of habitat and altitude, *H. peplidifolium* shows great variation. A form found in swamps in Uganda. (Kigezi, Kachwekano Farm, *Purseglove* 3127 !) has conspicuously larger leaves and flowers than has a form found in grasslands at the same place (*Purseglove* 2737 !). Another large-flowered form from nearby ground (Kigezi, Kinaba Gap, *Chandler* 2619 !) has about 60 stamens as against 22 in a high altitude form from Kenya (Elgon, 3600 m., *Adamson* 467). There are, however, so many specimens with characters intermediate between these extremes that I have not been able to recognize any named varieties. *H. peplidifolium* would undoubtedly form a good subject for study on experimental lines.

11. **H. scioanum** *Chiov.* in Ann. Bot. Roma 9 : 317 (1911) ; K.B. 1950 : 343 (1951). Type : Ethiopia, Shoa, Entotto Hill, *Negri* 332 (FI, holo. !)

Glabrous perennial herb with prostrate, procumbent or ascending stems up to 3 dm. long but often considerably less, sometimes forming tufts, rooting at the lower nodes, slender, quadrangular. Leaves ± sessile ; blades elliptic or obovate, ranging from 4 × 2 mm. to 9 × 5·5 mm., rounded at the apex, rounded or widely cuneate at the base, furnished with minute inconspicuous translucent glandular dots. Flowers single, often appearing axillary ; pedicels (2) 5–15 (20) mm. long. Sepals unequal, oblong, deltoid or lanceolate, obtuse or acute, furnished with translucent glandular dots and dashes. Petals 2–5 (7) mm. long, orange to yellow without marginal dots. Stamens in 3 groups of 5–9. Styles 3, occasionally 4. Capsule normally 3-valved. Fig. 2.

UGANDA. Ruwenzori, Mubuku Valley, Aug. 1938 (fl.), *Purseglove* 244 ! ; Kigezi District : Kanaba Gap, Dec. 1938 (fl. & fr.), *Chandler* 2620 ! ; Mbale District : Elgon, N. Bugishu, Bulambuli, 4 Sept. 1932, *A. S. Thomas* 570 !

KENYA. Elgon, Mar. 1935 (fl. & fr.), *Thorold* 2744 ! & 1 Mar. 1948 (fl. & fr.), *Hedberg* 182 ! ; Aberdare Mts., Kinangop, 21 Dec. 1930 (fl. & fr.), *Napier* 705 !

TANGANYIKA. Kilimanjaro, Kibo, 22 Feb. 1933, *C. G. Rogers* ! ; Morogoro District : Uluguru Mts., Lukwanguli, *Michelmore* 911 ! ; Bukoba District : Kishanda, Dec. 1931 (fl. & fr.), *Haarer* 2338 !

DISTR. **U**2–4 ; **K**3, 4, ?5 ; **T**1, 2, 4, 6, ?7 ; Ethiopia and eastern Belgian Congo.

HAB. Damp places, usually in upland moor, 1350 m. in Bukoba, elsewhere 2190–3360 m.

SYN. *H. stolzii* Briq. in Ann. Conserv. & Jard. Bot. Genève 20 : 391 (1919) ; Milne-Redh. in K.B. 1948 : 455 (1949), *pro parte*. Type : Tanganyika, locality uncertain but probably Rungwe District, *Stolz* 2223 (Z, holo. !)

H. thoralfi T. C. E. Fries in N.B.G.B. 8 : 566 (1923). Type : Kenya, W. side of Mt. Kenya, *Fries* 326 (UPS, holo., K, iso. !)

H. afropalustre Lebrun & Taton in B.J.B.B. 18 : 279 (1947) ; F.P.N.A. 1 : 619 (1948). Type: Belgian Congo, Mt. Mikeno, Kikeri Marsh, *Lebrun* 8512 (BR, holo., K, iso. !)

VARIATION. Plants from high up the mountains are very much smaller than those from lower altitudes, and have correspondingly smaller leaves and flowers. *H. scioanum* sometimes grows in company with *H. peplidifolium*, and hybrids between these species may well occur.

FIG. 2. *HYPERICUM SCIOANUM*, from *Chandler & Hancock* 2620—1, part of flowering stem, × 1; 2, leaf, × 4; 3, flower, × 4; 4, 5, outer and inner sepals, × 8; 6, petal, × 6; 7, stamens and pistil, × 8; 8, stamen, × 20; 9, pistil, × 8; 10, fruit, after dehiscence, × 8; 11, valve of capsule, × 8; 12, seed, × 40.

NOTE. The specimen from Bukoba District, Kishanda is the only specimen at Kew which is not from one of the mountain groups. It is from nearly 1000 m. lower altitude than the next lowest locality, but specimens from the Belgian Congo are cited as coming from 1850–2200 m. which helps considerably to diminish this gap. It comes from a high rainfall area.

There is doubt about the exact locality of Stolz's gathering, but it is likely to be Mt. Rungwe, where a search should be made for the species, which has at present only one definite station in southern Tanganyika, namely Ufipa District, Malonje, where it was found by Bullock (no. 1894) at 2250 m.

12. **H. humbertii** *Staner* in B.J.B.B. 13 : 69 (1934); F.P.N.A. 1 : 619 (1948); K.B. 1950, 343 (1951). Type : Belgian Congo, mts. W. of Lake Kivu, Kanzibi Marsh, *Humbert* 7503 (K, iso. !)

Glabrous perennial herb with prostrate, procumbent or ascending stems up to 3 dm. high, rather slender, quadrangular. Leaves elliptic or ovate, normally ranging from 7 × 4 mm. to 19 × 11 mm., obtuse at the apex, sessile, cordate and clasping the stem at the base, furnished with minute inconspicuous translucent glandular dots, as well as more conspicuous opaque glandular dots on the lower surface. Flowers single, sometimes appearing axillary ; pedicels 8–25 mm. long. Sepals unequal, ± lanceolate, furnished with translucent glandular dots and dashes. Petals 6–8 mm. long, orange to yellow, without marginal dots. Stamens in 3 groups of 12–15. Styles 3. Capsule 3-valved.

UGANDA. Kigezi District: Behungi, 19 Dec. 1933 (fl.), *A. S. Thomas* 1058! & Kanaba Gap, June 1946 (fl. & fr.), *Purseglove* 2073 ! & Oct. 1947 (fl. & fr.), *Purseglove* 2480 !
DISTR. U2 ; eastern Belgian Congo ; known only from the Virunga Mts. and other nearby mountains.
HAB. Swamps in upland grassland, 2100–2400 m.

Imperfectly known species

13. **H. sp. A.**

Probably a perennial, but said to be a "semi-climber," glabrous. Stems (in upper part) erect, terete, rather woody below with cortex soon flaking off. Leaves sessile, elliptic, ranging from 13 × 3·5 mm. to 21 × 8 mm., rounded at the apex, rounded or subcordate at the base, undulate towards the margin, furnished with conspicuous translucent glandular dots and black marginal glands. Flowers many, rather loosely arranged in paniculate cymes. Bracts with black marginal glands. Sepals ± equal, oblong-lanceolate, acute, with translucent linear glands and black marginal dots, especially towards the base. Petals ± 10 mm. long, probably yellow, with black marginal glandular dots. Stamens about 80, not arranged in definite groups. Styles 3. Capsule 3-valved.

KENYA. Masai District : Narok, *Rammell* 3492
DISTR. K6 ; known only from the above cited gathering.
HAB. Tall deciduous thicket, ± 1800 m.

NOTE. Little is known of the habit of this species, and it is hoped that collectors may rediscover it, and provide the information needed to enable the species to be named and fully described.

14. **H. sp. B.**

Glabrous perennial herb. Stems erect, up to 43 cm. high, terete. Leaves sessile, elliptic, ovate or obovate, up to 30 × 22 mm., rounded at the apex, cordate or subcordate at the base, furnished with conspicuous translucent glandular dots and black marginal glands. Flowers in corymbose cymes. Sepals lanceolate, acute with translucent linear glands and black marginal dots. Petals about 1 cm. long, yellow with black marginal dots. Styles 3. Capsule 3-valved.

TANGANYIKA. Mbeya District : lower slopes of Poroto Mts., 18 Feb. 1934, *Michelmore* 964 ! & Mount Mbeya, April 1938, *Maclunes* 241 !
DISTR. T7 ; also in " mts. E. of Lake Nyasa."
HAB. Upland grassland, 1950–2550 m.

NOTE. The only specimens of this species which have been seen are incomplete, but resemble *H. tetrapterum* Fr. in general appearance. They probably represent an undescribed species. Further and better-preserved material is required however before a name can be attached to it. Sp. B may even prove to be conspecific with sp. A (p. 12).

15. H. sp. C.

Glabrous perennial herb. Stems erect, or lateral ones decumbent, up to 3·5 dm. high, terete. Leaves sessile, elliptic or broadly elliptic, ranging from 11 × 6 mm. to 19 × 13 mm., rounded or slightly emarginate at the apex, cordate at the base, furnished with conspicuous translucent glandular dots and with black submarginal glands. Flowers single, sometimes appearing axillary ; pedicels 7–18 mm. long. Sepals very unequal, elliptic or ovate, the inner ones narrower, obtuse, furnished with translucent glandular dots and black submarginal dots. Petals 8–11 mm. long, yellow with black marginal dots. Number and arrangement of stamens unknown. Styles normally 5. Fruit fleshy, ovoid or somewhat conical, indehiscent.

TANGANYIKA. Mt. Rungwe, 11 Sept. 1932, *Geilinger* 2180 !
DISTR. T7 : known only from the above cited gathering.
HAB. " Tufflug," presumably on volcanic tuff, 1900 m.

NOTE. This plant is clearly related to *H. peplidifolium* A. Rich, but appears to be specifically distinct from it. Further collections of this *Hypericum* would be welcome.

2. VISMIA

Vand., Fl. Lusit. Brasil. 51, t.3, fig. 24 : 1788, *nom. conserv.*

Trees or shrubs. Leaves usually petiolate, entire, furnished with opaque glandular dots. Inflorescence terminal. Sepals 5, furnished with longitudinal linear glands or rarely gland-dots. Petals villous within, furnished with longitudinal linear glands or gland-dots. Stamens in 5 bundles opposite the petals, few to many in each bundle, with the upper part of the filaments free. Staminodes scale-like, alternating with the staminal bundles. Ovary 5-locular. Styles 5, free. Ovules 5 or more per loculus, arranged in two ranks. Fruit a berry. Seeds numerous, small and dry.

The genus is mainly American. There are a few species in the forests of West Africa and the Congo Basin, and two outliers in East Africa, one of which appears to be very local.

Leaves elliptic ; petiole 5–10 mm. long ; inflorescence with 12 or more flowers . . . . . 1. *V. orientalis*
Leaves broadly elliptic ; petiole less than 2 mm. long ; inflorescence with 2–4 flowers . . . . 2. *V. pauciflora*

1. **V. orientalis** *Engl.* in V.E. 3 (2) : 501 (1921) and in E. & P. Pf., ed 2, 21 : 186 (1925) ; T.T.C.L. 251 (1949). Types : Tanganyika, Pugu Hills and near Dar es Salaam, no specimens cited but possibly *Holtz in A.H.* 6730 and *Stuhlmann* 7067 (EA, ? iso.-syn. !)

Shrub or small tree, 2·5–7·5 m. high, rarely scandent. Stems terete, widened just below the nodes ; dormant buds densely rusty-tomentose, stems otherwise glabrous or rarely glabrescent. Leaves deciduous, petiolate ; blades elliptic, the apical pair on the flowering branches ranging from 4·5 × 1·5 cm. and 5·0 × 2·8 cm. to 9·0 × 5·2 cm. and 9·5 × 4·0 cm, 12·5 × 6·8 cm. larger on sterile branches, acuminate, cuneate at the base, furnished both

FIG. 3. *VISMIA ORIENTALIS*—1, flowering branch, × ½; 2, lower surface of leaf, × 6; 3, part of inflorescence, × 2; 4, flower, × 8; 5, flower with a sepal and two petals removed, × 8; 6, sepal, from within, × 8; 7, petal, from within, × 8; 8, staminode, × 36; 9, bundle of stamens, × 18; 10, stamen, × 36; 11, pistil, in young state, × 18; 12, ovary, l.s. and t.s., × 18; 13, berry, × 4; 14, calyx and staminodes after removal of berry, × 4; 15, seed, × 8. 1–3, from *Zimmerman* 9611; 4–5, from *Organes John in A.H.*9109; 6–12, from *E. M. Bruce* 1058; 13–15, from *Eggeling* 6433A.

with scattered and submarginal black glandular dots. Inflorescence usually terminating 4-leaved lateral branches, pedunculate, more than 11-flowered, appearing paniculate. Sepals ovate, about 4 mm. long, with linear glands. Petals narrowly elliptic, up to 6 mm. long, with linear glands, white variously marked with pink or red. Stamens about 22 per bundle ; filaments villous. Staminodes fleshy, glabrous. Ovary with about 5 ovules per loculus. Berry green or pinkish, dotted with pink or red, about 8 mm. in diameter. Seeds about 3 mm. long. Fig. 3.

KENYA. Kilifi District : Takaungu, May 1929 (fl.), *Graham* 2119 ! & Arabuko, *Graham* 1514 ! ; Kwale District : Shimba Hills, Makadara, July 1939 (unripe fr.), *van Someren* SH 125 *in C.M.* 11249.
TANGANYIKA. E. Usambara Mts., Mabanduka Kigara, 17 May 1942 (fl.), *Orgenes John in A.H.* 9109 ! ; Morogoro, Apr. 1951 (fr.), *Eggeling* 6073 ! & Dec. 1951 (fl.), *Eggeling* 6433 ! ; Mwale District : Mahuta, *Gillman* 1075 !
DISTR. K7 ; T3, 6, 8 ; not known outside our area, but probably occurs in Portuguese East Africa.
HAB. Lowland rain forest and coastal evergreen bushland, often by streams, 0–1000 m.

SYN. [*V. mguwe* [Bullock ex] Dale, T.S.K. 37 (1936), *nomen subnudum, descr. angl.*]

2. **Vismia pauciflora** *Milne-Redh.* in K.B. 1953 : 437 (1953). Type : Tanganyika, Lindi District, Rondo Plateau, Mchinjiri, *Eggeling* 6414 (K, holo. !, EA, iso. !)

Tree about 9 m. high. Stems as in *V. orientalis*. Leaves deciduous, shortly petiolate ; blades broadly elliptic, the apical pair on the flowering branches ranging from 4·0 × 2·2 cm. to 6·5 × 3·9 cm., acuminate, broadly cuneate at the base, in the fresh state whitish below (*fide* Eggeling), furnished with scattered and submarginal black glandular dots ; ultimate reticulation on the lower surface visible to the naked eye. Inflorescence usually terminating 4-leaved lateral branches, pedunculate, 2–4-flowered. Sepals ovate, about 4 mm. long, with linear glands. Petals oblong elliptic, about 7 mm. long, white with brownish linear glands. Stamens about 15 per bundle ; filaments villous. Staminodes fleshy, glabrous. Ovary with about 5 ovules per loculus. Berry not known.

TANGANYIKA. Lindi District, Rondo Plateau, Mchinjiri, Dec. 1951 (fl.), *Eggeling* 6414 ! & without locality or date, *Gillman* 1556 !
DISTR. T8 ; not known elsewhere.
HAB. Coastal evergreen bushland and lowland rain forest, 810 m.

3. PSOROSPERMUM

Spach in Ann. Sci. Nat., sér. 2, 5 : 157 (1836)

Trees, shrubs or suffrutices. Leaves petiolate, entire, often furnished with opaque glandular dots and stellate indumentum. Inflorescence a terminal cymose panicle. Sepals 5, furnished with longitudinal linear glands. Petals villous within, furnished with longitudinal linear glands and gland-dots. Stamens in 5 bundles opposite the petals, few to many in each bundle, with the upper part of the filaments free. Staminodes fleshy, scale-like, alternating with the staminal bundles. Ovary 5-locular. Styles 5, free. Ovules 1 (2) per loculus. Fruit a berry. Seeds large with a fleshy glandular-punctate testa.

This genus is very similar in many respects to *Vismia* Vand., differing principally in the fruit. It is poorly represented in East Africa, but has 21 species in Madagascar and 9 in West Africa.

1. Leaves not always strictly opposite, often sub-opposite or alternate ; cymes usually branching immediately above the uppermost pair of leaves 2

Leaves strictly opposite ; cymes usually branching at the apex of a common peduncle ; tree or shrub . . .	3. *Ps. febrifugum*
2. Tree or shrub ; sepals about 3 mm. long .	1. *Ps. corymbiferum*
Suffrutex ; sepals up to 5 mm. long . .	2. *Ps. lanatum*

1. **Ps. corymbiferum** *Hochr.* in Ann. Conserv. & Jard. Bot. Genève 21 : 58 (1919). Type : French Guinea, Fouta Djalon, *Heudelot* 768 (P, holo. !, K, iso. !)

Shrub or small tree, 2–5 m. high, often with corky bark. Stems terete or slightly flattened, densely rusty-tomentose. Leaves deciduous, opposite subopposite or alternate, shortly petiolate ; blades ovate, lanceolate or elliptic, up to 13 cm. long and 5 cm. broad, often much smaller, usually acute at the apex, cuneate or rounded at the base, varying from glabrescent to densely rusty-tomentose on the lower surface which is not markedly pallid and reticulation in consequence not conspicuous ; glandular dots numerous ; upper surface glabrous or glabrescent. Inflorescence terminating either main or lateral shoots, variable in size and degree of indumentum, sessile, appearing paniculate. Sepals ovate-elliptic, about 3 mm. long. Petals elliptic, up to 5 mm. long, with linear glands, white with reddish marks Stamens 8–13 per bundle ; filaments villous. Staminodes fleshy, glabrous. Berry red, purple or black.

var. **corymbiferum**

Pedicels and outside of calyx densely rusty-tomentose.

UGANDA. West Nile District : West Madi, Meturu, Mar. 1935 (fl.), *Eggeling* 1783 !
DISTR. U1 ; widely spread through West Africa to the Gambia.
HAB. Wooded grassland, about 1050 m.

SYN. [*Ps. guineënse* sensu Hutch. & Dalz., F.W.T.A. 1 : 232 (1927), *pro parte, non* Hochr.]
[*Ps. febrifugum* sensu Dale, I.T.U., ed. 2, 159 (1952), *pro parte, non* Spach]

NOTE. *Ps. corymbiferum* var. *kerstingii* (Engl.) Keay & Milne-Redh., with pedicels and outside of calyx sparingly pubescent or glabrous, is not known from the area of this Flora.

2. **Ps. lanatum** *Hochr.* in Ann. Conserv. & Jard. Bot. Genève 21 : 59 (1919). Type : French Guinea, Kollangui, *Chevalier* 13512 (P, holo. !, K, iso. !)

Suffrutex. Stems erect, sparingly branched, about 0·45 m. high, terete or somewhat flattened, densely rusty-tomentose. Leaves alternate or subopposite (rarely ternate), shortly petiolate ; blades elliptic or obovate, up to 14 cm. long and 6 cm. broad, often much smaller, acute or obtuse at the apex, cuneate or rounded at the base, densely rusty-tomentose on the lower surface, less densely so above ; reticulation and glandular dots concealed by the indumentum. Inflorescence terminating the main shoot, densely rusty-tomentose, sessile. Sepals ovate-elliptic, 5 mm. long. Petals elliptic, up to 7 mm. long, with linear glands, pink. Stamens 10–11 per bundle ; filaments villous. Staminodes fleshy, glabrous. Berry unknown.

UGANDA. West Nile District : Koboko, Feb. 1934 (fl.), *Eggeling* 1521 !
DISTR. U1 ; also in French Guinea.
HAB. Wooded grassland, about 1260 m.

SYN. [*Ps. guineënse* sensu Hutch. & Dalz., F.W.T.A. 1 : 232 (1927), *pro parte, non* Hochr.]
[*Ps. febrifugum* sensu Dale, I.T.U., ed. 2, 159 (1952), *pro parte, non* Spach]

3. **Ps. febrifugum** *Spach* in Ann. Sci. Nat., sér, 2, 5 : 162 (1836) ; F.T.A. 1 : 158 (1868) ; B.J.B.B. 13 : 90 (1934) ; Exell & Mendonça in Consp. Fl.

FIG. 4. *PSOROSPERMUM FEBRIFUGUM* var. *FERRUGINEUM*—1, flowering branch, × ⅔; 2, lower surface of leaf, × 14; 3, flower, × 8; 4, flower with a sepal and two petals removed, × 8; 5, sepal, from within, × 8; 6, petal, from within, × 8; 7, staminode, × 24; 8, bundle of stamens, × 16; 9, pistil, × 16; 10, ovary, l.s. and t.s., × 16; 11, berry, × 4; 12, calyx, staminodes and staminal bundles after removal of berry, × 4; 13, seed in fresh state, × 4; 14, seed after drying, × 4; *PS. FEBRIFUGUM* var. *FEBRIFUGUM*—15, leaf, showing lower surface, × ⅔. 1–10, from *Brasnett* 47; 11–14, from *Dawe* 824; 15, from *Eggeling* 180.

Angol. 1 : 122 (1937), *excl. syn. Ps. baumii* Engl. Type : Angola, locality and collector unknown (P, holo. !)

Shrub or small tree, 1–6 m. high, often with corky bark. Stems terete ; dormant buds densely rusty-tomentose ; stems varying from glabrous to densely rusty-tomentose. Leaves deciduous, strictly opposite, shortly petiolate ; blades variable in shape, subrotund, ovate, obovate, elliptic up to 9 cm. long and 6·5 cm. broad, often much smaller, acute, obtuse or rounded at the apex, subcordate, rounded or broadly cuneate at the base, varying from glabrous to densely rusty-tomentose below, with a conspicuous reticulation showing on the pallid less tomentose surfaces, sometimes with scattered glandular dots, glabrous or glabrescent above. Inflorescence terminating either main or lateral shoots, variable in size and degree of indumentum, usually pedunculate, appearing paniculate. Sepals ovate-elliptic, about 3 mm. long. Petals elliptic, up to 6 mm. long, with linear glands, white marked with red or purple. Stamens 5 per bundle ; filaments villous. Staminodes fleshy, glabrous. Berry red, about 10 mm. in diameter. Seeds about 5 mm. long. Fig. 4, p. 17.

var. **febrifugum**

Stems at first densely rusty-tomentose, later glabrescent. Leaf blades glabrous except on the midrib, the underside pallid with conspicuous reticulation (at least when dry). Pedicels and outside of calyx glabrous. Fig. 4/15, p. 17.

UGANDA. Karamoja District : Napak, 27 May 1940 (fr.), *A. S. Thomas* 3579 ! ; Teso District : Serere, Dec. 1931 (fl.), *Chandler* 309 ! ; Mengo District : Kyewaga Forest, 17 Feb. 1950 (fl.), *Dawkins* 144 !
KENYA. Kavirondo, without precise locality, Jan. 1894 (fr.), *Scott Elliot* 7083 !
TANGANYIKA. Mwanza District : Geita, Nov. 1944 (fr.), *Erni in Bally* 4081 ! ; Rufiji District : Mafia Island, 3 Apr. 1933 (fr.), *Wallace* 795 ! ; Rungwe District : Masukulu, 18 Feb. 1913 (fr.), *Stolz* 1888 !
DISTR. **U**1, 3, 4, ; **K**5 ; **T**1, 4, 6–8 ; widely spread in Tropical Africa.

SYN. *Ps. febrifugum* Spach var. *albidum* Oliv. in F.T.A. 1 : 159 (1868) ; Hiern, Cat. Afr. Pl. Welw. 1 : 57 (1896). Types : Portuguese East Africa, R. Zambezi below Tette, *Kirk* (K, syn. !), and Angola, Huila, *Welwitsch* 1066 (BM, K, isosyn. !)
Ps. albidum (Oliv.) Engl. in E.J. 17 : 83 (1893) ; V.E. 3 (2) : 502 (1921)
Ps. campestre Engl. in E.J. 17 : 84 (1893) ; V.E. 3 (2) : 502 (1921) ; T.T.C.L. 250 (1949) ; Fl. Pl. A.-E. Sudan 1 : 213 (1950) ; I.T.U., ed. 2, 159 (1952). Type : Angola, Congo District, S. Salvador, *Buettner* 40 (B, holo. †)
Ps. stuhlmannii Engl. in P.O.A. C. : 274 (1895) ; V.E. 3 (2) : 502 (1921) ; T.T.C.L. 250 (1949). Type : Tanganyika, Uzaramo District, Vikindu, *Stuhlmann* 6096 (B, holo. †)

var. **ferrugineum** (*Hook f.*) *Keay & Milne-Redh.* in K.B. 1953 : 290 (1953). Type : Sierra Leone, Freetown, *G. Don* (K, holo. !)

Stems densely rusty-tomentose. Leaf-blade densely rusty-tomentose below, the indumentum sometimes becoming sparse in age revealing (in the dry state) a conspicuous reticulation. Pedicels and outside of calyx densely rusty-tomentose. Fig. 4/1–14, p. 17.

UGANDA. Bunyoro District : Busingiro Hill, Mar. 1932 (fl.), *Harris* 79 ! ; Ankole District : between Nsongezi and Roborogoto, Oct. 1932 (fl.), *Eggeling* 674 ! ; Masaka District : Buddu, Kyebe, Aug. 1945 (fl.), *Purseglove* 1785 !
KENYA. Kwale District : Shimba Hills, May 1930 (young fr.), *Donald* 36
TANGANYIKA. Buha District : Kitolo, 22 km. N. of Nguruka, 5 Oct. 1949 (fl.), *Bally* 7635 ! ; Morogoro District : Uluguru Mts., 3 Jan. 1935 (fl.), *E. M. Bruce* 418 ! ; Iringa District : Sao, 5 Feb. 1934 (fr.), *Michelmore* 956 !
DISTR. **U**2, 4 ; **K**7 ; **T**1, 4–7 ; widely spread in tropical Africa.

SYN. *Ps. ferrugineum* Hook. f. in Hook., Nig. Fl. 241 (1849)
[*Ps. febrifugum* sensu Engl. in P.O.A. C : 274 (1895) ; V.E. 3 (2) : 502 (1921) ; F.W.T.A. 1 : 232 (1927) ; T.S.K., 36 (1936) ; T.T.C.L. 250 (1949) ; I.T.U., ed. 2, 159 (1952), *excl. spp. Eggeling* 1521 & 1783, *non* Spach *sensu stricto*]

HAB. (for species as whole) Deciduous woodland and wooded grassland, 50–1950 m.

VARIATION. *Ps. febrifugum* Spach, as recognized here, shows great variation in degree of indumentum, in leaf-shape and in size of inflorescence, with no apparent correlation of these characters. For convenience, I have recognized two varieties based on indumentum. Each shows considerable range in leaf-shape and size of inflorescence. Specimens may be found with characters more extreme than, as well as intermediate between, those of these varieties. *Ps. febrifugum* defies orthodox taxonomic treatment, and should prove a profitable subject for the experimental taxonomist.

4. HARUNGANA

Lam., Encycl. Méth. Pl. de Bot., t. 645 (1797)

Arungana Pers. Syn. 2 : 91 (1806), *nom. illegit.*

Haronga Thou., Nov. Gen. Madag. 15 (1811), *nom. illegit.*

Trees or shrubs. Leaves petiolate, entire, furnished with opaque glandular dots and stellate or dendroid indumentum. Inflorescence a terminal cymose panicle. Sepals 5, furnished with glands. Petals ± villous within, furnished with glands. Stamens in 5 bundles opposite the petals, few in each bundle, with the upper part of the filaments free. Staminodes fleshy, scale-like, alternating with the staminal bundles. Ovary 5-locular. Styles 5, ± free. Ovules 2 (3) per loculus, basal. Fruit a drupe with 5 pyrenes adhering to form a spherical mass. Seeds cylindric, curved.

A monotypic genus, readily recognized by its fruit. It seems probable that *Haronga scandens* Engl. is synonymous with *Vismia rubescens* Oliv., a species from West Africa very similar to *Harungana* in facies and inflorescence, but the description does not exactly agree with the few specimens available for comparison. Alternatively *H. scandens* may represent a form of *H. madagascariensis*. *H. scandens* was based on a single gathering (*Ledermann* 6326) in flower, and this no longer exists, so the position of the species must remain in doubt.

H. madagascariensis [*Lam. ex*] *Poir.* in Lam., Encycl. Méth. 6 : 314 (1804) ; Exell in J.B. 68 : 181 (1930) ; T.S.K. 36 (1936) ; Consp. Fl. Angol. 1 : 121 (1937) ; F.P.N.A. 1 : 625 (1948) ; T.T.C.L. 249 (1949) ; I.T.U., ed. 2, 156 (1952). Types : Madagascar, *Commerson* and *Martin* (P–L, syn.)

Shrub or tree up to 12 m. (exceptionally 27 m.) high, much branched, evergreen, with scaly bark and orange or blood-red sap. Young stems densely covered with rusty stellate or dendroid hairs. Leaves petiolate ; petioles up to 27 mm. long ; blades lanceolate to ovate, ranging from 6·5 × 4·5 cm. and 8·5 × 3·5 cm. to 20 × 10 cm., shortly acuminate, rounded (rarely broadly cuneate, truncate or cordate) at the base, with about 14 parallel lateral veins on each side of the midrib, glabrescent and dark glossy green above, pallid below with short glandular or rusty stellate indumentum ; young leaves densely rusty on both surfaces. Inflorescence a large many-flowered corymbose-cymose panicle ; pedicels and calyx rusty. Flowers sweet-scented. Sepals ovate-elliptic, about 2 mm. long, with a few longitudinal linear glands and gland dots. Petals ovate-elliptic, up to 3 mm. long, with 2–4 gland dots near the apex, white. Stamens 3–4 per bundle ; filaments glabrous. Staminodes fleshy, glabrous. Drupe spherical, about 4 mm. diameter ; pericarp crustaceous, yellow or orange ; pyrenes each 0–2-seeded. Seeds about 2 mm. long. Fig. 5, p. 20.

UGANDA. Ankole District : Igara, Kyamuhunga, May 1939 (fl.), *Purseglove* 691 ! ; Mbale District : Elgon, Bufumbo, 22 Dec. 1924 (fr.), *Snowden* 967 ! ; Entebbe, Oct. 1931 (fl. & fr.), *Eggeling* 32 !

KENYA. N. Kavirondo District : Tiriki Forest, Dec. 1911 (unripe fr.), *Moon* 571 ! ; Mt. Kenya, eastern side near Mara River, 25 Feb. 1922 (fl.), *Fries* 1973 ! ; Kwale District : Shimba Hills, Mwele, *Gardner* 1408 !

TANGANYIKA. Bukoba District : without locality, 25 Oct. 1925 (fl.), *Wigg* 270 ! ; Rufiji District : Mafia Is., Baleni, 3 Sept. 1937 (fr.), *Greenway* 5219 ! ; Rungwe District : Tukuyu–Masoko, 22 July 1932 (fr.), *Davies* 403 ! & 23 Mar. 1932 (fl.), *St. Clair–Thompson* 1013 !

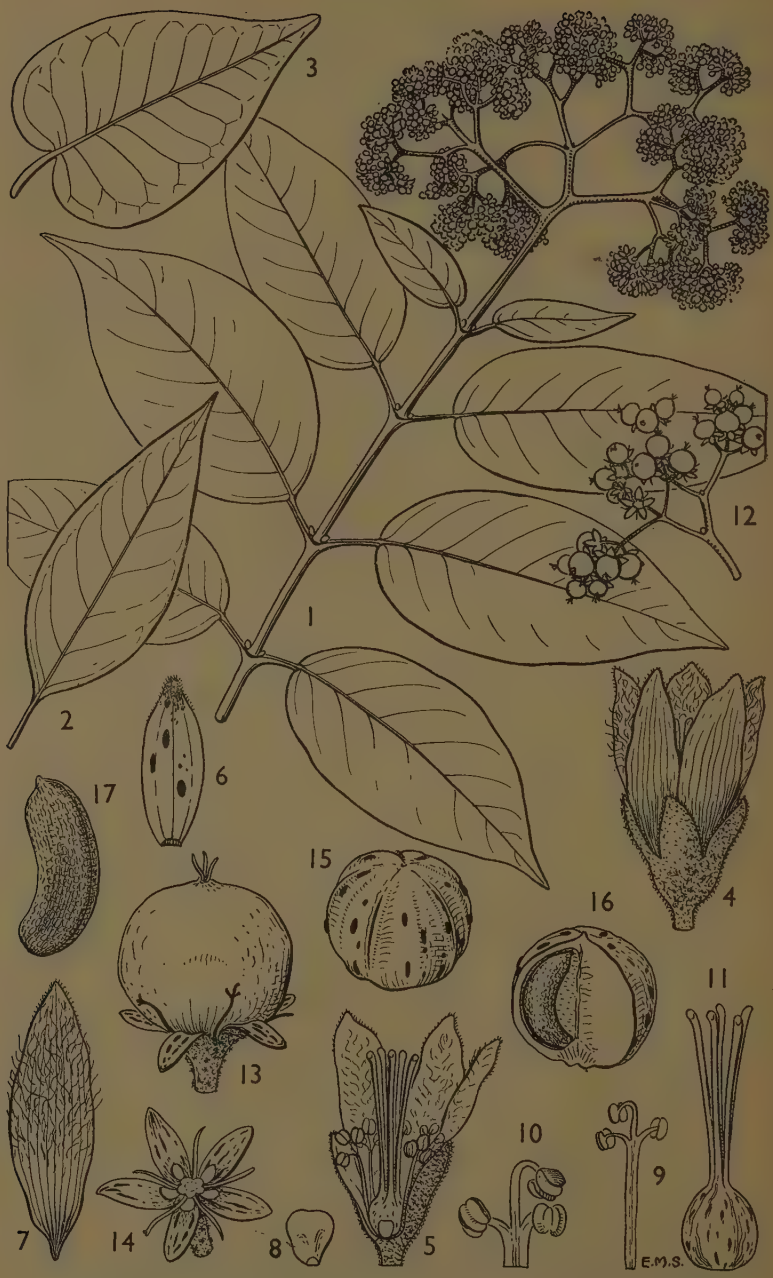

FIG. 5. *HARUNGANA MADAGASCARIENSIS*—1, flowering branch, × ½ ; 2, 3, leaves showing variation in shape, × ⅛ ; 4, flower, × 8 ; 5, flower with a sepal and two petals removed, × 8 ; 6, sepal, from within, × 12 ; 7, petal, from within, × 12 ; 8, staminode, × 12 ; 9, bundle of stamens, × 12 ; 10, stamens, × 24 ; 11, pistil, × 12 ; 12, part of inflorescence, × 1 ; 13, drupe, × 8 ; 14, calyx, staminodes and staminal bundles after removal of drupe, × 8 ; 15, mass of pyrenes, × 8 ; 16, mass of pyrenes cut open to show seed, × 8 ; 17, seed, × 16. 1, 4–11, from *Haarer* 2071 ; 2, from *Stolz* 697 ; 3, from *Simmance* 203 ; 12–17, from *Greenway* 5219.

ZANZIBAR. Zanzibar Is., Masingini Ridge, 1 Feb. 1923 (fl.), *Greenway* 1279 ! ; Pemba, Ngezi Forest, July 1901 (fl.), *Lyne* 120 !

DISTR. **U**2–4 ; **K**4, 5, 7 ; **T**1, 3, 6, 7 ; **Z**, **P** ; widely spread throughout tropical Africa, and in Madagascar and the Mascarene Islands ; apparently absent from Ethiopia.

HAB. Lowland and upland rain forest, 0–1800 m.

SYN. *Arungana paniculata* Pers., Syn. 2 : 91 (1806), *nom. illegit.*
Haronga madagascariensis (Poir.) Choisy, Prodr. Mon. Hypér. 34 (1821) ; F.T.A. 1 : 160 (1868) ; Fl. Madag. 135 : 12, t.11/8–13 (1951), *nom. illegit.*
Haronga paniculata (Pers.) Steud., Nom., ed. 2, 722 (1840) ; P.O.A. C ; 274 (1895) ; V.E. 3 (2) : 503 (1921) ; E. & P. Pf. 21 : 188, fig. 76 (1925) ; F.W.T.A. 1 : 233 (1927) ; Staner in B.J.B.B. 13 : 78 (1934), *nom. illegit.*

NOTE. The orange or blood-red sap, which exudes readily from broken leaves and twigs, as well as from a slash, is an excellent field spot-character for this species.

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